Bachelor of Computer Application (B.C.A.)

3rd Semester (Batch 2023-26) (CBGS)

INTRODUCTION TO PYTHON PROGRAMMING

Paper—BCA03003T

Time Allowed—3 Hours]   [Maximum Marks—100

Note :—Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. (a) What are the technical strengths of Python language ? Explain.

   (b) Define variables and identifiers used by Python.

2. (a) What is the use of lists in Python ? Explain.

   (b) Explain the usage of selection control by writing Python program.

SECTION—B

3. (a) Write a Python program to find the smallest of three numbers using if-else control structure.

   (b) Write a program to find factorial of a number illustrating recursion.

4. (a) Discuss the role of packages.

(b) Explain the concept of Python modules.

SECTION—C

5. (a) Write a Python program to read text from a text-file.

(b) Differentiate readline() and readlines() functions.

6. (a) Write a Python code to find area of a square by using features of object oriented programming.

(b) What is the significance of inheritance ? Explain.

SECTION—D

7. How SQL database connection is carried out using Python ? Explain.

8. Explain the following concepts by taking suitable examples :

(a) Programming with multiple tables.

(b) Data modelling.

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MULTIMEDIA TECHNOLOGY AND APPLICATIONS

Time Allowed—3 Hours]   [Maximum Marks—100

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. Which are various uses of Multimedia ? Write a detailed note on multimedia market.

2. Explain the following :

 (a) Final Cut Pro

 (b) Hypermedia and Hypertext

 (c) Multimedia Components.

SECTION—B

3. What is difference between bitmaps and vector drawings ? Which format is more suitable for digital images and why ? Write the features of any three image formats.

4. What do you mean by color model ? Explain various color models available in Adobe Photoshop.

SECTION—C

5. What is MIDI ? What are differences between MIDI and digital sound ? Write the advantages and disadvantages of both.

6. (a) Which are differences between analog and digital video ?

   (b) Which are various important issues to be kept in mind while shooting and editing video ?

SECTION—D

7. Which are various animation techniques ? Explain any five.

8. What are various requirements to make a good multimedia project ?

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DATABASE MANAGEMENT SYSTEM

Paper : BCA03002T

Time Allowed—3 Hours]   [Maximum Marks—100

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. What are the different types of data models supported by database system ? What is the difference between Hierarchical Model and Network Model ? Explain in detail.   20

2. Explain the following concepts giving suitable example of E-R Diagram :

   (a) Strong Entity.

   (b) Weak Entity.

(c) Relationships.

(d) Specialization.

(e) Generalization. 5×4=20

SECTION—B

3. Explain Normalization. Explain the concept of multi-valued dependency with an example. How would you remove it to achieve 4NF ? 20

4. (a) Explain the significance of the DBTG report in the development of database management systems. 10

   (b) Describe the principle of least privilege and its importance in database security. 10

SECTION—C

5. (a) Explain the concept of DCL. Explain the use of DCL statements using suitable examples. 10

   (b) Explain the use of Union, Intersection and Minus function using suitable example. 10

6. What is a cursor in a database, and why is it used ? How would you use the % FOUND, %NOTFOUND, %ROWCOUNT, and %ISOPEN attributes in a SQL block ? 20

SECTION—D

7. How does big data differ from traditional data processing systems ? Write some popular tools used in big data analytics. Provide examples of how big data analytics is used in different industries.   20

8. What are NoSQL databases ? How does NoSQL differ from traditional relational databases ? Explain some advantages of NoSQL databases.   20